

METHOD AND SYSTEM FOR MINIMIZING AN AMOUNT OF DATA  
NEEDED TO TEST DATA AGAINST SUBAREA BOUNDARIES IN  
SPATIALLY COMPOSITED DIGITAL VIDEO

ABSTRACT OF THE DISCLOSURE

A method and system for minimizing an amount of data needed to test data against subarea boundaries in spatially composited digital video. Spatial compositing uses a graphics unit or pipeline to render a portion (subarea) of each overall frame of digital video images. This reduces the amount of data that each processor must act on and increases the rate at which an overall frame is rendered. Optimization of spatial compositing depends on balancing the processing load among the different pipelines. The processing load typically is a direct function of the size of a given subarea and a function of the rendering complexity for objects within this subarea. Load balancing strives to measure these variables and adjust, from frame to frame, the number, sizes, and positions of the subareas. The cost of this approach is the necessity to communicate, in conjunction with each frame, the graphics data that will be rendered. Graphics data for a frame is composed of geometry chunks. Each geometry chunk is defined by its own bounding region, where the bounding region defines the space the geometry chunk occupies on the compositing window. Only the parameters that define the bounding region are communicated to each graphics unit in conjunction with the determination of which graphics unit will render the geometry chunk defined by the bounding region. The actual graphics data that comprises the geometry chunk is communicated only to those geometry units that will actually render the geometry chunk. This reduces the amount of data needed to communicate graphics data information in spatially composited digital video.

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